# Power System Output Feedback Stabilizer Design Via Geneticalgorithms

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## Summary

The paper demonstrates the use of genetic algorithms to design output feedback power system stabilizers. Two methods are presented: in the first method, the problem is formulated as an optimization problem with a standard infinite time quadratic objective function. A digital simulation of the power system is then used in conjunction with the genetic algorithm to determine the output feedback gains. In the second method, the problem of selecting the output feedback gains is converted to a simple optimization problem with an eigenvalue based objective function, which is solved by a genetic algorithm. The design method does not need the specification of weighting matrices. Various objective functions are presented allowing the selection of the output feedback gains to place the closed loop eigenvalues in the left hand side of a vertical line in the complex s plane, within an open sector in the complex s plane, or within a vertical strip in the complex s plane. The effectiveness of the output feedback stabilizer in enhancing the dynamic stability of power systems is verified through eigenvalue analysis and simulation results